

## CLAIMS:

1. (Amended) A field-effect transistor, comprising:
  - a ferromagnetic layer, having a film thickness of 50 nm or less, which is made of a Ba-Mn oxide showing ferromagnetism at 0°C or higher;
  - a dielectric layer made of a dielectric material or a ferroelectric material, said ferromagnetic layer and said dielectric layer being bonded to each other, wherein the field-effect transistor has a bottom-gate structure.
2. The field-effect transistor as set forth in claim 1, wherein the ferromagnetic layer is made of a Ba-Mn oxide whose composition is represented by  $(La_{1-x}Ba_x) MnO_3$  where x satisfies  $0.05 < x < 0.3$ .
3. The field-effect transistor as set forth in claim 1, wherein the ferromagnetic layer is made of a Ba-Mn oxide whose composition is represented by  $(La_{1-x}Ba_x) MnO_3$  where x satisfies  $0.10 < x < 0.3$ .
4. The field-effect transistor as set forth in claim 1, 2, or 3, wherein the dielectric material or the ferroelectric material is  $BaTiO_3$ ,  $SrTiO_3$ ,  $(Ba_{1-y}Sr_y) TiO_3$ ,  $PbTiO_3$ ,  $Pb (Zr_{1-z}Ti_z) TiO_3$ , or  $Al_2O_3$ , where y satisfies  $0 < y < 1$  and z satisfies  $0 < z < 1$ .
5. The field-effect transistor as set forth in claim 1, 2, or 3, wherein the dielectric material or the ferroelectric material is  $BaTiO_3$ ,  $SrTiO_3$ ,  $(Ba_{1-y}Sr_y) TiO_3$ ,  $PbTiO_3$ , or  $Al_2O_3$ , where y satisfies  $0 < y < 1$ .
6. (Deleted)